IN THE CLAIMS:

1. (Currently Amended) A system for improving an output of a transducer signal comprising:

at least one transducer;

a beamformer;

at least one chosen, fixed input beam;

an algorithmic block producing a desired resulting output beam having a narrowed on-axis beamwidth, wherein the narrowed on-axis beamwidth of the desired resulting output beam is produced by superpositioning a desired main beam with a beam steered at an angle from the axis of the desired main beam; and

an output signal comprising the desired resulting output beam having a narrowed beamwidth.

2. (Original) The system of claim 1 further comprising multiple chosen, fixed input beams, wherein the algorithmic block produces a plurality of desired output beams, and wherein the output signal comprises a plurality of desired output beams having a desired beamwidth.

3. (Original) The system of claim 1 wherein the transducer is a microphone which simultaneously receives multiple, acoustic signals which can be spatially represented as beampatterns.

4. (Original) The system of claim 3 wherein the system includes a plurality of transducers.

5. (Original) The system of claim 4 wherein the transducer is selected from among the group of a microphones, reciprocal transducers, hydrophones, or geophones.

6. (Cancelled)

7. (Original) A system of claim 1 wherein the algorithmic block produces narrowed on-axis beamwidths for multiple desired main beams, and wherein the algorithmic block sums the beamformer outputs for the multiple desired resulting beams, and wherein the output signal comprises the beamformer outputs for the multiple desired resulting narrowed beams.

8. (Original) The system of claim 1 further comprising a microprocessor, and wherein the microprocessor includes the algorithmic block.

9. (Original) The system of claim 1 wherein the algorithmic block comprises:

computer executable instructions; and

a medium for having stored therein the computer executable instructions.

10. (Original) The system of claim 1 further including multiple sound paths to the transducer, wherein the multiple sound paths create multiple signals corresponding to the multiple sound paths, and wherein the multiple sound paths create a phase shift in the multiple signals.

11. (Original) The system of claim 10 wherein the multiple sound paths have varying resonators for attenuation and creating the phase shift.

12. (Original) The system of claim 10 wherein the multiple sound paths have differing lengths and include insulation for attenuation and creating the phase shift.

13. (Original) The system of claim 10 wherein the multiple sound paths have varying cross-sections for attenuation and creating the phase shift.

14. (Currently Amended) A method for narrowing the desired pickup of a desired signal comprising the steps of:

determining a location on a spatial representation of a desired main beam containing the desired signal; and

narrowing the width of the desired beam of the desired signal, comprising:

producing a cancellation beam;

steering a central axis of the cancellation beam with or by phase shifts specified by a desired resulting beamwidth of the narrowed desired beam; and

subtracting the cancellation beam from the desired main beam via superpositioning.

15. (Original) The method of claim 14 wherein the step of determining a location is empirically performed and is fixed.

16. (Original) The method of claim 14 wherein the step of determining a location is performed using mathematical analysis.

17. (Original) The method of claim 16 wherein the mathematical analysis is multidimensional Fourier transforms.

18. (Original) The method of claim 14 wherein the desired signal is an analog acoustic signal, and wherein the method further includes the steps of:

receiving an input signal by a transducer;

forming beams from said input signal; and

outputting an output signal.

19. (Cancelled)

20. (Currently Amended) The method of claim 14 ~~19~~ wherein said narrowing the beamwidth includes:

producing a second cancellation beam;

steering the central axis of the second cancellation beam to a second angle specified by the desired resulting beamwidth of the desired resulting beam; and

subtracting the second cancellation beam from the desired main beam via superpositioning.

21. (Original) The method of claim 14 wherein the method is simultaneously performed on multiple desired main beams to produce multiple improved on-axis signal pickups.

22. (Original) The method of claim 21 wherein the method further includes the step of summing the narrowed multiple desired main beams.

23. (Original) The method of claim 14 wherein the step of narrowing the beamwidth is performed by a microprocessor.

24. (Original) The method of claim 23 wherein the microprocessor includes computer executable instructions and a medium for reading said executable steps.

25. (Original) A non-continuously adaptive method for improving the on-axis pickup of a desired input signal comprising the steps of:

determining location on a spatial representation of a desired main beam of the desired input signal;

determining a desired resulting beamwidth of a desired resulting beam;

narrowing the beamwidth of the desired main beam by removing an area of the spatial representation of the desired main beam;

producing a desired resulting output beam; and

producing an output signal from the desired resulting output beam.

26. (Original) The method of claim 25 wherein the step of determining a desired resulting beamwidth is empirically performed.

27. (Original) The method of claim 25 wherein the step of determining a desired resulting beamwidth is mathematically performed.

28. (Original) The method of claim 25 wherein the step of determining a desired resulting beamwidth is performed using Fourier transforms.

29. (Original) The method of claim 25 wherein said step of narrowing the beamwidth includes:

producing a cancellation beam; and

steering the central axis of the cancellation beam a phase specified by the pre-determined desired resulting beamwidth of the desired resulting output beam; and

subtracting the cancellation beam from the desired main beam via superpositioning.

30. (Original) The method of claim 29 wherein the step of narrowing the beamwidth includes:

producing multiple cancellation beams wherein each cancellation beam overlaps the desired main beam;

steering the central axis of the multiple cancellation beams a phase specified by the desired resulting beamwidth of the desired resulting output beam; and

subtracting the multiple cancellation beams from the desired main beam via superpositioning.

31. (Original) The method of claim 30 wherein the method simultaneously improves multiple, desired main beams and simultaneously produces multiple desired resulting output beams.

32. (Original) The method of claim 31 wherein the output signal comprises each of the multiple resulting desired output beams.

33. (Original) The method of claim 32 wherein the multiple desired resulting output

beams are produced from multiple desired input signals.

34. (Original) The method of claim 29 wherein the method further includes the steps of:

receiving said desired input signal by a transducer;

forming beams from said desired input signal prior to said producing a cancellation beam; and

outputting said output signal.

35. (Original) The method of claim 34 wherein the method further includes the step of converting said desired input signal from an analog signal to a digital signal.

36. (Original) The method of claim 25 wherein the step of narrowing the beamwidth is performed by a microprocessor.

37. (Original) The method of claim 36 wherein the microprocessor includes computer executable instructions and a medium for reading said executable steps.

38. (Original) A computer-readable medium having computer-executable instructions for performing steps comprising:

locating a spatial representation of a desired main beam of a desired input signal;

producing a cancellation beam;

steering the central axis of the cancellation beam a phase specified by the desired resulting beamwidth of the narrowed desired beam; and

subtracting the cancellation beam from the desired main beam via superpositioning.

39. (Original) The computer readable medium of claim 38 having further computer-executable instructions for performing the steps of:

producing multiple cancellation beams;

steering the central axis of the multiple cancellation beams a phase specified by the desired resulting beamwidth of the desired resulting beam; and

subtracting the multiple cancellation beams from the desired main beam via superpositioning.

40. (Original) The computer readable medium of claim 38 having further computer-executable instructions for performing the steps of:

receiving said signal by a transducer;

converting said signal from an analog signal to a digital signal;

forming beams from said signal; and

outputting said signal.

41. (New) The method of claim 25, wherein the step of narrowing the bandwidth comprises:

adjusting the area of the spatial representation of the desired main beam in accordance with the desired resulting bandwidth as determined by the step of determining a desired resulting beamwidth.

42. (New) A system for improving an output of a transducer signal comprising:

at least one transducer;

a beamformer;

at least one chosen, fixed input beam;

an algorithmic block producing a plurality of desired resulting output beams, each desired resulting output beam having a narrowed on-axis beamwidth, wherein the

narrowed on-axis beamwidth of each said desired resulting output beam is produced by superpositioning a desired main beam with a beam steered at an angle from the axis of the desired main beam, and wherein each said desired resulting output beam corresponds to a corresponding frequency band; and

an output signal comprising the plurality of desired resulting output beams, each said desired resulting output beam having a narrowed beamwidth.

43. (New) The system of claim 42 wherein the at least one transducer is a microphone which simultaneously receives multiple, acoustic signals which can be spatially represented as beampatterns.

44. (New) The system of claim 43 wherein the system includes a plurality of transducers.

45. (New) The system of claim 43 wherein the at least one transducer is selected from the group consisting of a microphone, a reciprocal transducer, a hydrophone, and a geophone.

46. (New) The system of claim 42 further comprising a microprocessor, and wherein the microprocessor includes the algorithmic block.

47. (New) The system of claim 42 wherein the algorithmic block comprises:

computer executable instructions; and

a medium for having stored therein the computer executable instructions.

48. (New) The system of claim 42 further including multiple sound paths to the at least one transducer, wherein the multiple sound paths create multiple signals corresponding to the multiple sound paths, and wherein the multiple sound paths create a phase shift in the multiple signals.

49. (New) The system of claim 48 wherein the multiple sound paths have varying

resonators for attenuation and creating the phase shift.

50. (New) The system of claim 48 wherein the multiple sound paths have differing lengths and include insulation for attenuation and creating the phase shift.

51. (New) The system of claim 48 wherein the multiple sound paths have varying cross-sections for attenuation and creating the phase shift.

52. (New) The system of claim 42, further comprising multiple chosen, fixed input beams.